The University of Chicago

PRICE LEVEL STABILIZATION

SOME THEORETICAL AND PRACTICAL CONSIDERATIONS

A PART OF A DISSERTATION SUBMITTED TO THE FACULTY OF THE DIVISION OF THE SOCIAL SCIENCES IN CANDIDACY FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

DEPARTMENT OF ECONOMICS
1940

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For well over a century price stabilization has been advocated by writers on monetary issues, and especially during the last half century the propaganda and agitation for this policy have become of marked interest and importance. But in spite of the great bulk of the literature, surprisingly little attention has been given to the practical problem of what price level to stabilize, and to the criteria upon which an index number for monetary stabilization would be made up. Such is, roughly, the purpose of this monograph. In order to do this, it is necessary to have in mind the aims of such monetary stabilization and the theoretical nature of the problems we wish the price stabilization to solve.[1]

Loosely, such monetary stabilization has two aims: first, to minimize industrial fluctuations ("the business cycle"), and second, to bring about "equity" between debtors and creditors. In regard to the second, per se, little needs be said. For existing money contracts it is important whether, say, wholesale prices should be stabilized, permitted to rise very gradually, or permitted to fall gradually (as under "neutral money"). But for all contracts made after the announcement of the definite policy as to the future value of money, it is not very important which variation of this sort of monetary stabilization is chosen, for the crucial matter is that uncertainty as to the future value of money be as far as possible removed. Put otherwise, this is simply Bentham's principle that equity consists essentially in the non-disappointment of expectations--in this case expectations as to the future value of money.[2]

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[1] It should be recognized that these introductory pages are definitely not to be regarded as an argument for price stabilization. Instead, they are only a very sketchy outline of the sort of argument which can be made for such a policy.

[2] Cf. R. A. Lehfeldt, "Monetary changes affect the distribution of wealth merely because they are unanticipated or not fully anticipated" (Restoration of the World's Currencies [London, [1923], p. 125). In this brief statement, practically all that is necessary and relevant to this problem is summarized precisely.

In the scope of this very brief monograph it is impossible to state in any detail the theoretical basis for price level stabilization. To do this would require a complete analysis of the various theories of "the business cycle," including consideration of the problems arising from differential long run movements of costs and selling prices with technological changes. We may break the problem up into "short run" and "long run" causes of business fluctuations, distinguishing simply on some arbitrary time limit, say six months or a year, the purpose being to eliminate the problems of general movements in costs from non-monetary causes (labor unions, technological progress, etc.) in the "short run."

If we assume a hypothetical "normal," in which banks are fairly well loaned up to their customary limits, the marginal efficiency of investment equals the interest rate, the relationship of selling prices and costs over most industries is such as to lead entrepreneurs to maintain roughly the present level of output, and no cumulative cyclical movement is under way,[1] we may attempt to see what forces might lead to a movement away from this "normal" and move cumulatively into a boom or depression. That is, the problem considered is, how to maintain a "moderate prosperity," once attained.

Very briefly, such a movement away from "normal" will come only if entrepreneurs (and investors) find some incentive to increase or decrease output--i.e., if entrepreneurs' expectations of future relationships between selling prices and costs, or if investors' estimates of the profitability of investment change sharply. Moreover, it is not sufficient that a few entrepreneurs entertain such changed expectations, but that in some way such changed expectations become general, and the synchronizing factor in this connection is undoubtedly "money," in the broad sense of the term. We can trace the basic elements of cyclical fluctuations primarily back to two: first, perverse fluctuations in the quantity and velocity of circulation of money and credit, and second, the existence of "sticky" costs, because of which fluctuations in effective monetary demand give rise to special profits and losses. If, then, we were to offset com-

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[1] Assume also, at present, a closed economy, and the absence of "extraneous" factors tending to disturb the "normal" (e.g., severe crop failures, wars, political disturbances, etc.).

pletely such fluctuations in effective monetary demand (as by "neutral money" or price level stabilization), it seems clear that the major step would have been taken toward preventing the great waves of changing profit expectations (of entrepreneurs and investors) which constitute the driving force of the cycle.

Various writers have set forth different "theories" and "causes" of cyclical fluctuations. However much validity such "theories" have, it can be shown that all of them are compatible with the argument that monetary stabilization could prevent severe cyclical fluctuations. That is, even though the "causes" of the cycle should be "non-monetary," it does not follow that monetary cures may not be successful--in our case successful in preventing a great deviation from "normal." Moreover, since fluctuations in agricultural prices come primarily as a result of fluctuations in industrial activity and prices, and since agricultural "prosperity" is largely a result of industrial and business conditions, the fear that fluctuations in agricultural crops may lead to a "business cycle" is largely unfounded. If we introduce such "extraneous" factors as wars, etc., we can simply say that monetary stabilization would, as long as it could be maintained, largely offset any sharp movement away from "normal."

Price stabilization as a national policy would not be incompatible with stable exchange rates, but it probably would keep rates less stable than would an international gold standard. Absence of stable exchange rates is a serious disadvantage, but unfortunately there seems to be no prospect at all for an international stabilization plan in the foreseeable future. When we recognize the great internal advantages to be had from independent monetary stabilization and that there is at least as great a likelihood of reasonably stable exchanges with as without internal monetary stabilization, the most advantageous path for the United States seems clear.

In the "long run" two primary problems arise. One is the danger of "profit inflation" through a gradual decline of costs from technological advance while prices were held up. The period of the 1920's is cited as proof of the danger and argument that "neutral money" is preferable to price stabilization.[1] Three

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[1]It should be noted that only when we reach our "long run" does it become a matter of much importance what variant of "monetary stabilization" is used.

factors are overlooked by this argument. First, the price level was not held stable following 1929, which was when the real need for monetary action arose. Second, stable prices during the 1920's were at best a haphazard side-product of government policy, so that there was no real certainty as to the future value of money. And third, it must be recognized that the position of organized labor is much stronger now than then, and that labor in general is much more aggressive. Thus, the second primary problem is that the real danger seems to be that wages will be pushed up too fast to permit full employment, not that they (wages--costs) will not rise fast enough to eliminate profit inflation. Furthermore price stabilization permits rising money wages and makes adjustment to changing technological and demand conditions much easier than they would be under neutral money which calls for a steady downward pressure on prices.[1]

Accepting price stabilization as the best available rule for monetary policy[2] and recognizing the necessity of using an index of prices sufficiently sensitive to indicate divergences from "normal" before they reach substantial proportions, we may proceed to examine in more detail the actual make-up of the index to be stabilized--i.e., to consider what would be the "ideal" prices for the index if such prices were available. But first it is desirable to indicate more precisely just how the index would be used by the monetary authority. Two assumptions are possible.

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[1]No space is taken here to argue the advantages of a monetary "rule" over the delegation of power to discretionary authorities. The larger part of the advantages of monetary stabilization depend on the existence of real certainty, and this can hardly be expected with a discretionary authority. Further disadvantages of discretionary authorities are the difficulty of choosing qualified experts and of protecting them from political pressure groups. On this matter see especially Henry C. Simons, "Rules versus Authorities in Monetary Policy," JPE, XLIV (1936), 1-36.

[2]For purposes of symmetry, the theoretical possibility that price stabilization might increase uncertainty in certain cases should be noted, though it can hardly be considered of importance. If the stabilization of one group of prices should increase the dispersion of all prices about the average (perhaps because adjustment to some non-monetary factor is forced entirely on the non-stabilized prices), for one interested in the non-stabilized prices uncertainty would be increased. For example, in case a domestic price index were stabilized, the dispersion of international prices (in terms of the domestic currency) might be increased. This seems to be a general argument against using too narrow an index.

First, the monetary authority might be expected to watch the index closely but to permit, at its discretion, a certain "margin of tolerance" in its movements before any corrective action had to be taken, according to the rule. Second, the authority might be compelled to act on every fluctuation of the index, taking corrective action immediately upon appearance of any minor divergence from 100 (or whatever the stabilized level is) and continuing such action until the index is restored to 100.[1] Probably the best basis for distinction is the length of time the policy of stabilization has been in effect. During the transition period, there is much to be said for permitting a fairly large amount of discretion. During such a period, it might be well to use an index primarily of very flexible prices as an indicator of needed changes, but not as a guide to the amount of monetary action (i.e., not as an index to be absolutely stabilized). Ultimately, of course, it would be desirable to have an index to be stabilized absolutely so far as was possible. Every deviation from 100 would be the signal for corrective action, to be continued until the index was restored to 100. Clearly, such an index would be different in nature from the one just mentioned--it would include many more prices, representing all important sectors of the economy,

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[1]The question of how much, if any, "margin of tolerance" should be allowed is not an easy question. There seems to be almost unanimous agreement that price stabilization should not mean complete fixity of the price level. (Cf., e.g., A. D. Gayer, Monetary Policy and Economic Stabilization [London, 1935], pp. 235-36; R. G. Hawtrey, The Art of Central Banking [London, 1935], p. 257; and J. R. Commons, "The Stabilization of Prices and Business," AER, XV [1925], 45.) That it would be unnecessary for every minute fluctuation of the index to be the occasion for monetary action may be true, but certainly the line beyond which fluctuations ceased to be "minute" ought to be very narrowly drawn if such tolerance is allowed. The danger is almost entirely one of permitting too great fluctuations rather than of disturbing otherwise placid situations by unnecessary monetary action. For practical purposes the question does not seem very important. To state the mandate in terms of absolute stabilization would doubtless permit such minor fluctuations to go more or less unchecked through the inability of the authority to maintain an absolutely stable level; while to state a "margin of tolerance" of, say, 5 points on either side would appear to be unnecessary courting of danger. If a margin of tolerance has to be used, it should certainly be made as narrow as possible. Every additional movement away from "normal" must make the task of the authority in restoring "normal" more difficult in what might be termed a geometric rather than an arithmetic ratio.

which would mean the inclusion of some fairly sticky prices. Here the problem is largely one of weighting, although so long as there are no perversely flexible prices used the result is different in degree, not in kind. That is, the inclusion of sticky (but not perversely flexible) prices simply tends to damp down the amplitude of fluctuation of the index, but does not affect its timing. However, many prices commonly called "sticky" are perverse at least to a minor extent--i.e., they tend to rise, say, a few months at the end of the upswing after the flexible prices have turned down. In this case, their inclusion does definitely affect the timing of the index, and their weights should be held down accordingly. It is obvious that it would not be desirable to stabilize an index composed of the five most flexible prices in the economy. But just how far we should go in including less flexible prices is a much harder question.[1] There is ever present the presumption in favor of using a large, well-distributed number of prices, simply on the ground that such an important guide should be based on as large a sample as possible.

Speaking from here on of the "ultimate" index, the first question which arises in choosing prices is whether the index shall be of prices at wholesale or retail or be a "general" price index (including prices at both wholesale and retail, as well as those of securities, land, labor services, etc.). It would certainly seem at first glance that the logical choice is wholesale prices. It is the wholesale price level which fluctuates most sharply and quickly with the changes in business activity we call the business cycle. And it is wholesale prices with which entrepreneurs (except those who sell directly to consumers) are almost entirely concerned. Especially is this true in the capital goods industries, where the real business cycle problem lies; fluctuations of output in consumers', and especially in non-durable consumers', goods are relatively unimpressive as compared to the great fluctuations of production in the heavy, capital goods industries.[2] Bearing in mind these two fundamental considerations,

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[1] It is the problem of weighting, rather than of the actual number of sticky prices used, that is the important one. Clearly, the same result can be obtained by weighting a few sticky prices heavily as by using a large number, each weighted lightly.

[2] See Leonard Ayres, The Chief Cause of This and Other Depressions (Cleveland, 1935), p. 34; and Y. S. Leong, "Indexes of

we may examine the claims of the two alternative possibilities.

The primary advantages of the use of a retail price index seem to be its representativeness of the cost of living[1] and its supposed greater popular appeal. The desirability of stabilizing roughly the cost of living may certainly be admitted; how important the second point is cannot be dogmatically stated. However, there is little concrete evidence to support the claim that popular support could be rallied much easier for retail than for wholesale price stabilization.[2]

On the other hand, in addition to the objections already noted (i.e., that it is not retail, but wholesale, prices which

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the Physical Volume Production of Producers' Goods, Consumers' Goods, Durable Goods, and Transient Goods," Journal of the American Statistical Association, XXX (1935), especially Charts I and II, p. 362.

[1]The question, "Whose cost of living?" arises immediately. Obviously it is not permissible to use the concept of the cost of living of people in general as more than the roughest of approximations. In view of this admitted fact, certainly the claim that a retail index would best stabilize the cost of living cannot be taken heavily in comparison with other, definite considerations, especially when a wholesale index would also tend to stabilize the cost of living in this loose sense (which is the only acceptable sense for our purposes, since there is no reason why one particular group should be favored over another, except possibly in very general terms that the lower income groups need stabilization more). To use a retail price index on this ground would be tremendously to underemphasize the stabilization-of-business consideration.

[2]Over a long period of years the divergence between wholesale and retail price levels has been small. Cf. e.g., Carl Snyder, "Commodity Prices versus the General Price Level," AER, XXIV (1934), 390 and Chart VII on p. 397, for the years 1850-1934 in the United States and England; also F. C. Mills, "Post-War Prices and Pre-War Trends," Journal of the American Statistical Association, XXIII (1928), Table III, p. 53. Thus, other things equal (which they are not), apparently it would make comparatively little difference which type of index was used.

To the extent that there is a more rapid rate of cost reductions in fabricating than in distributing goods, the probability is greater that profit inflation will occur in the fabricating process than in distributing On this assumption, there will be a tendency for the wholesale price level to fall relative to the retail price level. Thus, stabilization of the retail price level would tend to make profit inflation slightly less likely--or it may be considered a disadvantage in that it would permit money wages to rise less rapidly than under wholesale stabilization. Or it is conceivable that distribution costs might fall more rapidly than fabricating, in which case the considerations would be reversed. In any case, such considerations have been, and probably will continue to be, quantitatively unimportant.

fluctuate closely with the cycle and with which entrepreneurs are primarily concerned), two further fundamental weaknesses of retail prices appear. The first is simply that they are far less sensitive than are wholesale prices, tending to move only substantially after the wholesale index.[1] In view of the fact that, if monetary policy is to be successful in maintaining stability, it must certainly exercise its checks before deviations get far under way, this failure of retail prices to indicate changed conditions rapidly is a consideration of tremendous importance. Added to this is the necessary failure of retail price indexes to include quotations of capital goods prices, which constitute such a large and vitally important sector of the price structure and which are a part, indirectly, of consumers' expenditures, through their investment in securities.[2] An index composed of retail prices may thus safely be shelved in favor of some other which conforms more closely to the specifications indicated.[3]

Stabilization of the "general" price level is a plan which has been tentatively probed by many leading writers but strongly advocated by none. The best known index of this sort is that of Carl Snyder, including now twelve basic series among which are wages, realty values, security prices, and rents, in addition to regular wholesale and retail prices of different types.[4] The general price level shows a strong upward movement

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[1] Cf. G. F. Warren and F. A. Pearson, Gold and Prices (New York, 1935), pp. 312-15.

[2] Cf. R. G. Hawtrey, "Money and Index Numbers," Journal of the Royal Statistical Society, XCIII (1930), 81.

[3] It is hardly necessary to point out the special difficulties in making up a dependable retail price index, chief among which is that of ascertaining the exact meaning of the quotations obtained. This problem of what price to use for any given commodity, great in any case, becomes almost a hopeless one in dealing with retail prices, where truly standardized commodities (including in the "commodity" the retailing service) are virtually non-existent.

[4] See "The Measure of the General Price Level," Review of Economic Statistics, X (1928), 40-52, for details. The original index was less comprehensive, using four series (wholesale prices, cost of living, composite wages, and rents, with varying weights). See Snyder's Business Cycles and Business Measurements (New York, 1927), pp. 137-38.

In spite of sharp criticism of the Snyder index as being simply a hodge-podge and hence unsuitable as an index to cyclical fluctuations, a guide to monetary policy, or a standard of de-

relative to the wholesale commodity price level.[1] Evidently proceeding from this historical relationship, Snyder argues that the stabilization of the wholesale commodity price level is undesirable because it would necessitate the insertion of credit at such a rate that continuous inflation (of the general price level) would occur.[2] The conclusion that under stabilization of the wholesale price level there would be an upward trend of the general price level is probably true (although Snyder cites only the fact of its historical trend). But the fear that such a divergence means "disaster" and "inflation" appears to be based largely on a misapprehension. The reason for the upward relative movement of the general price index is primarily the inclusion of money wages, which of course have tended to rise steadily, although to a lesser extent the inclusion of rents and security prices have reinforced the upward effect.[3] But since it is due primarily to rising money wages, the rise in the general price level with a stable wholesale price level, instead of being "inflation" and "inevitable

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ferred payments (G. Haberler, "A New Index Number and Its Meaning," QJE, XLII [1928], 434-49), Haberler later suggested that it might well be the index used in inaugurating price stabilization, although later it would be desirable to make substantial changes. (Statements in discussion group, Journal of the American Statistical Association, Proceedings, XXIV [1928], 248-49.)

[1] Carl Snyder, "Monetary and Economic Stability," QJE, XLIX (1934), especially Chart V, p. 191.

[2] "An attempt to maintain a fixed level of commodity prices at wholesale would inevitably mean disaster, for it would mean persistent inflation, that is, an expansion of credit at more than four per cent per annum. The result would be to open the way to just what happened in 1922-29 . . . . [where] the wildest outbreak of speculation took place" (ibid., pp. 198-99). It will be recalled that Snyder argues that trade shows a rather steady increase at about the rate of 4 per cent per annum and that stability can be maintained only by increasing credit at precisely this rate (p. 198). Although the statement is not definitely made, the implication is that expansion of credit at just this "proper" rate would bring approximate stability of the general price level, and indeed, Snyder has defended the possible use of his general price level as a stabilization guide, although apparently as inferior to the credit expansion rule ("The Index of the General Price Level," QJE, XLII [1928], 701-707).

[3] Although Snyder does not draw attention to these causal factors, and apparently failed to see their significance, the evidence is provided by his own graphs. See "Commodity Prices versus the General Price Level," op. cit., Chart I, p. 388, and Chart II, p. 389.

disaster," is precisely the necessary condition for the avoidance of inflation. For if money wages were not to rise with the increase in productivity while the wholesale price level remained stable, there would occur precisely the profit inflation which the Austrian school has stressed so much. Thus, Snyder's fear of the stabilization of the wholesale price level seems largely ungrounded, accepting the trend of money wages which he (implicitly) assumes will continue; while stabilization of his general price level (including wages) would necessitate a downward trend of wholesale prices if stability were to be maintained, the slope of the downward trend to be determined by the weight given wages in the index and the rate of technological advance.

There remain, however, the issues of whether security (equity) prices and rents shall be included in the index stabilized (i.e., of whether it is wise to augment the pure wholesale price index with these series) The experience of the United States during the 1920's may be cited as evidence in favor of the inclusion of security prices, for the stabilization of an index including security prices would have tended to check the speculative boom which developed. However, this argument suffers from the same fallacies as the general arguments against price stabilization drawn from the experiences of those years. It is sufficient here to note that had the profit inflation not occurred (i.e., had expectations been less fantastic and had wages risen more rapidly, as would have been true under a definitely stated policy of price stabilization and with greater labor unionization), such a boom in security prices would have been most improbable. Due to increased efficiency in production there was a sharp rise in industrial profits, upon which the stock market boom was fundamentally based (although in its later stages, of course, it lost all connection with reasonable profit expectations, even considering the business psychology of the times). Hence, if profit inflation had not occurred, there is little reason to expect the boom would have ever got under way.[1] And when

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[1] Cf. Hawtrey, "Money and Index Numbers," op. cit., p. 83. The issue of qualitative versus quantitative credit control is, of course, involved here This, however, is relevant to the question of implementation more than to the present discussion. It may be noted, though, that if the above argument that fundamentally speculation in the stock market (at least in its earlier stages) must rest upon actual and anticipated profits by the issuing companies is correct, the stabilization of prices (and

this argument for inclusion of security prices is removed, there seems to remain no reason why they should be included. Securities are not in themselves ultimate objects of expenditure at all; the funds are actually spent on the purchase of capital goods for the most part. Moreover, security prices are notoriously subject to sharp random fluctuations and are undesirable for this reason. The prices of capital goods should certainly be included in the index to be stabilized, but security prices omitted.[1]

There seems to be no very cogent reason why rents on land and buildings should be included in the index,[2] and there are at least three reasons why they should not. First, money rents are rather insensitive to cyclical fluctuations, moving considerably behind wholesale price changes;[3] hence their inclusion would tend to make the index sluggish, diminishing its usefulness

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hence, roughly, of profit margins over industry as a whole) would apparently remove the cause which starts speculative booms. Thus, although a considerably stronger case can be made for qualitative credit control (if it could be exercised successfully, which is most improbable) after the speculative security boom is well under way, since then optimism in the market appears to be far more independent of actual prospective industrial profits, price stabilization would act to prevent this condition from arising and thus make irrelevant this argument for qualitative control.

[1]There is general agreement on this point. Cf., e.g., Hudson Hastings, "The Best Index Number for Stabilization Purposes," Journal of American Statistical Association, XXIII (1928), 144-45, and Gayer, Monetary Policy and Economic Stabilization, pp. 262-63. It would hardly be seriously contended by anyone that bond prices should be included, since bonds are merely claims to money payments in the future and tend to fluctuate inversely with the price level of commodities.

[2]The writer has seen no argument at all for their inclusion per se. However, by implication those favoring stabilization of the general price level favor their use. W. I. King ("The Best Index for Use in Stabilizing the Price Level," Journal of American Statistical Association, XXIII (1928), 146-52), after suggesting the stabilization of as comprehensive an index of retail prices as possible, advances the possibility of superimposing upon this index one including such unstandardized series as wages, house rents, etc., the monetary authority to take account of the relations of the series to each other. He gives no particular reason why this should be done, except that it is desirable to stabilize relatively stable prices and let others fluctuate somewhat. If this be the reason, it is hard to see why separate indexes of the sort noted should be used, but King advances the suggestion very tentatively.

[3]Cf. Warren and Pearson, Gold and Prices, pp. 386-87.

as a sensitive indicator for monetary action. Second, the inclusion of rents would (in proportion to the weight given them) tend to make necessary a downward trend of the wholesale price level since rents normally show a relative upward trend,[1] so their stabilization would put a downward pressure on other prices. It has already been argued at length that such a downward pressure on selling prices, in the face of reasonable expectations as to the attitude and power of organized labor in the future, is highly undesirable. Hastings, likewise arguing from the growing scarcity of land (non-reproducible-resources) and its upward relative trend in price, advocates the stabilization of an index of prices of freely reproducible goods only, excluding especially land prices and rents,[2] but on the grounds that only thus can true debtor-creditor justice be assured. He feels this is so because, while gains and losses due to changing efficiency of production should go exclusively to the producing classes, all classes should bear alike the burden of increasing scarcity of natural (non-reproducible) resources. In view of these three considerations[3] the position that rents should be included hardly seems defensible.

If the arguments that retail prices, wages, rents, and prices of securities and land are not suitable for an index to be stabilized be accepted, a wholesale commodity price index seems

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[1] Cf. Snyder, "Commodity Prices versus the General Price Level," op. cit., pp. 388-89, for the statistical evidence. It should be noted, however, that the relative upward trend of rents is much less than that of money wages and hardly more than that of retail prices. The reason for this relative upward trend in an economy growing in both population and technology is easy to see, due to the growing scarcity of land relative to other factors of production (again drawing the usual loose distinction between land and other factors).

[2] "The Best Index Number for Stabilization Purposes," op. cit., pp. 142-43. As for the quantitative importance of these considerations based on increasing land values, Harold Hoyt, One Hundred Years of Land Values in Chicago, 1830-1933 (Chicago, 1933), p. 352, found the increase in land values in Chicago to have been roughly 6 per cent annually, compounded, although this is probably considerably more rapid than the average for the country during this period.

[3] A fourth, this one practical rather than theoretical, is the virtual impossibility of obtaining any half-way satisfactory index of, or representative figures on, rents. The problem of weighting in this case becomes practically insoluble.

to be the choice, by a process of exclusion. (The general price index, bereft of wages, rents, and security and land prices, is essentially only a commodity price index.) But in addition, the wholesale price index is the logical choice, as already indicated.[1] We may proceed, then, to a consideration of the particular characteristics of individual wholesale prices which would make them desirable components of the price index to be stabilized.

The most fundamental consideration seems to be that the index shall be made up of, or at least give prominent position to, "important" commodities--"important" in the sense of monetary value. Moreover, since the cyclical fluctuations which it is the main aim of monetary policy to eliminate come predominantly in the investment goods industries, it is desirable that commodities "important" in these industries be given relatively heavy weight.[2] It is hardly necessary to labor the point that to stabilize an index made up of "unimportant" goods' prices would be courting danger and disaster through disregarding fluctuations in important prices and through putting unnecessary and undesirable pressures on the important prices to maintain stability of the unimportant ones. It is further desirable that the index be made up of as large a number of prices as is feasible in view of the other specifications. The most obvious reason, of course, is that the larger the number included, the less the chance of widely

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[1] Two further, practical, considerations of great importance in favor of the use of wholesale prices may be indicated briefly at this point. First, wholesale prices are much more easily and quickly available. The Bureau of Labor Statistics and numerous other agencies for years have collected wholesale prices on a very large number of commodities regularly so that highly organized administrative machinery is already in existence. Not only is this true, but wholesale price data, due to the fact they can usually be got at more centralized points (as compared with the necessity of reaching a tremendously large number of retailers), are much more promptly available for use. Second, wholesale prices, since commodities sold at wholesale are, on the whole, much more standardized than retail commodities, are more trustworthy and meaningful than retail quotations, although exceedingly great care must be taken with wholesale quotations, heaven knows!

[2] This point has been emphasized by Gunnar Myrdal, "Der Gleichgewichtsbegriff als Instrument der geldtheoretischen Analyse," Beitrage zur Geldtheorie, ed. F. A. Hayek (Vienna, 1933), p. 440, although he sets up as a still more prominent consideration the desirability of stabilizing a sticky price index to avoid pressure on sticky prices.

divergent movements in non-represented prices which might lead to serious business fluctuations even though the index remained stable. Two further advantages of including a large number of prices may be cited. First, the larger the number, the greater the degree of monetary certainty, to the entrepreneur in making his plans for the future,[1] to those making all sorts of money contracts calling for future payments (thus better fulfilling the popular demand for debtor-creditor justice and certainty), and to consumers planning future expenditures. These last two points, especially, would make excellent "selling points," tending to reach, as they do, the popular demand for justice and a stable cost of living. The other major advantage of including a large number of prices is that it assures an adequate check against wild random fluctuations of any price or small group of prices' causing sharp fluctuations in the index,[2] which index changes would have to be offset, disturbing the otherwise stable remaining prices in the system to at least some extent.

The second fundamental consideration in choosing prices to use is that they possess a reasonably high degree of flexibility (or "sensitivity")--the higher the better so long as the criterion of a large number of commodities is observed.[3] If price stabilization is to eliminate or minimize the cycle, it must certainly check cyclical beginnings in their incipient stages, and since price stabilization is a "rule" intended to

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[1]This is not, of course, to say that the entrepreneur would be certain the particular prices in which he was interested would remain stable. Indeed, this is a fallacy in the lay mind which would have to be actively combatted during the "educational" campaign. It may be worth noting, however, that the inclusion of any prices in which the entrepreneur was interested in the index would be a safeguard to a very minor extent against fluctuations completely "off the map," for their inclusion would exercise some restraint. The larger the total number of commodities used, of course, the less would be this individual restraint.

[2]The problem of weighting in this connection is, as always in index number construction, of great difficulty. Cf. Part II, infra.

[3]As Henry Simons puts it, ". . . . otherwise, the administrative authority would be compelled to postpone its actions unduly after significant disturbances or (Heaven forbid!) obliged to use discretion in anticipating changes" ("Rules versus Authorities in Monetary Policy," JPE, XLIV [1936], 13). See this same reference for Simons' brief note on the criteria for choice of prices, along the same lines as those of this discussion.

minimize discretionary authority it is essential that the index give warning in time. Obviously, this criterion of flexible, sensitive prices rules out all sorts of "regulated" prices--regulated by government, by custom, or by monopoly. Notoriously, governmentally controlled rates and monopolized prices (here using the term in . popular sense, meaning commodities having a low elasticity of demand for the producer or producing group involved) are sticky, both as to amplitude of fluctuation and quickness of adjustment to changed conditions. The fundamental necessity of getting non-"regulated" prices is indicated especially clearly by the "recession" of 1937-38, when industrial production slumped drastically but the B.L.S. wholesale price index declined considerably less in percentage terms. That is, there being such a large sector of "monopolized" prices in industry and in the index at present, the recession consisted to an appreciable part of reductions in output and employment while prices remained high. Stabilization of an index loaded with such prices would not prevent the recession, for it would only stabilize that which is already relatively stable--monopolized prices Only when prices are competitively determined can they be trusted to reflect accurately business conditions, and only the stabilization of an index predominantly of such prices can succeed in flattening business fluctuations (although stabilization of any index would greatly mitigate the severity of cycles) Thus, all rates regulated by governmental agencies (of which railroad and public utility rates are most important economically) and prices of monopolized products (in the above sense, which is admittedly rather vague) should be excluded, in so far as is at all feasible.[1]

This criterion of flexibility implies the corollary that the commodities chosen be actively traded in highly organized markets, since it is such markets which tend to be highly competitive This corollary, of course, tends to limit the choice somewhat to the more basic, standardized commodities, which is

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[1]There probably exists now no commodity produced and sold under conditions of perfectly atomistic competition. This, however, is not particularly significant. What is significant for our purposes is the grouping at the other end of the scale Our choice must be limited to those lying as far as possible from the monopolized end of the scale Of course, for any individual commodity other criteria must be weighted with its price flexibility to decide on its inclusion.

highly desirable, as will be pointed out. It goes without saying, of course, that not only should the commodities be actively traded at present in such a market but that the probability should be that they will continue to be so.[1]

Examination of actual price data is deferred to the follow chapters.[2] However, that price "stickiness" is widespread is a matter of common knowledge, and a possible solution, for use in case a sufficient number of "important," "flexible" prices cannot be found, may be suggested. The difficulty in using "regulated" prices is that they may remain relatively stable while production and employment in the industry decline sharply (i.e., quantity may be sacrificed to price), and therefore that the use of such a price index would not indicate the need for corrective monetary action nor would stabilization of the index be successful in stabilizing employment. Gardiner Means, generalizing on the basis of his study of inflexible prices, writes, "Indeed, the whole depression might be described as a general dropping of prices at the flexible end of the price scale and a dropping of production at the rigid end with intermediate effects between."[3]

That there is a substantial degree of truth in this generalization cannot be questioned. However, justifiable criticisms of Means' conclusions, and especially of this generalization, have been made--on the grounds that the data do not warrant the generalization, that the price quotations used did not represent actual sale prices, and that no account was taken of changes in quality of product and technology of production.[4] These criticisms, all

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[1] A similar view to the future, of course, must be taken in connection with all the other criteria as well. With the primary emphasis upon stabilization as a long run, fixed policy, administered with a minimum of discretionary authority, the necessity for choosing commodities which will continue to be suitable over a fairly long period is obvious. Were it found necessary (or were politicians able to argue forcefully that it was desirable) to alter the composition of the index at short intervals, the resulting situation would be highly deplorable. The utmost care should be taken to close tightly every possible opening to political tinkering.

[2] See the complete dissertation on file in the University of Chicago Libraries.

[3] Gardiner C. Means, Industrial Prices and Their Relative Inflexibility, Senate Document No. 13, 74th Cong., 1st Sess. (Washington, 1934), p. 8.

[4] For Means' answer to his critics, see "Notes on Inflexible Prices," AER, Supplement, XXVI (1936), 23-35. This article also brings his price computations up to the date of the issue.

of which carry weight, will be discussed in detail later in connection with the actual price data. Here, however, mention should be made of a study similar to Means', made by Jules Backman for the National Industrial Conference Board. Using 264 commodities, representing practically the entire composition of the B.L.S. index from 1929-1933 (due to elimination of duplications), Backman found that while there is some ground for Means' generalization (made after a study of only 10 major industries) no simple and clear-cut relationship between price stickiness and production change exists.[1] Especially for finished and semi-finished goods was the relationship very uncertain, but for other types of prices as well a considerable scatter was found. For example, many textiles, chemicals, and vegetable oils failed to conform to Means' hypothesis. Throughout, however, a strong tendency in the direction of Means' generalization was apparent.

Suppose, however, the index to be stabilized were made up of individual pq (i.e., price times quantity) relatives rather than simply price relatives. Sticky prices would then clearly be usable, since a decline (rise) either in price or in output would be clearly reflected in the pq index. The stabilization of such a pq index would give precisely the same result as would a stable MV (neutral money) policy, i.e., prices falling apace with increase in output. Abstracting temporarily from the difficulty in obtaining prompt, accurate quantity figures, this scheme seems to have some value as giving greater objectivity than is sometimes found to the neutral money proposal (correction for population changes being possible in either case, of course). However, we have determined against the "deflationary" program of neutral money; and therefore if the pq plan is to be usable, correction must be made to secure results more comparable to those of "ideal" price stabilization, i.e., permitting gradually rising money wages with the easier adjustment to technological changes obtained under stable or rising prices. The theoretically "ideal" solution seems clear--an index of technological improvement or of the rate of production increase (similar to Carl Snyder's) would be computed and the pq index permitted to rise slowly at the rate determined by the index of production increase, instead of being kept stable. Obviously such an index of technological advance would be very

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[1] "Price Flexibility and Changes in Production," National Industrial Conference Board Bulletin, Feb. 20, 1939, pp. 45-51.

difficult to obtain, and the projection of past trends even into the immediate future would be questionable. However, if such correction could be made and the pq index permitted to rise at just the "proper" rate, the result obtained would be that desired under regular price stabilization but with the "regulated" prices being usable.[1] Whether the advantages to be gained by using a pq index would be sufficient to offset the disadvantages incurred is uncertain. The loss of the essential simplicity of price stabilization and (possibly) of some of the general sentiment built up in favor of it would be unfortunate, and the practical problems of constructing such a pq index are not to be taken lightly. Yet, if the stickiness of "important" commodity prices is so widespread as to make straightforward price stabilization not feasible, such a pq plan may provide the most satisfactory alternative.[2]

The third primary consideration in choosing prices for the index is that the commodities be capable (with the least possible difficulty) of sharp definition in terms of physical specifications,[3] and that there be as great as possible a prospect that such commodities, defined in physical terms, will continue to be actively traded and remain "important" over a considerable period of years. That is, it is desirable to avoid, as far as possible, commodities likely to undergo considerable technological change or to be replaced in importance by other commodities in the fore-

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[1]The question then would arise whether the entire index should then be constructed on this pq basis, or whether only relatives for sticky (drawing some arbitrary dividing line) prices should be computed by this method while relatives for flexible prices would be the simple (p) relatives, and then the two sets of relatives combined into the final index. If this latter, combined, method were to be used, the computation of the rate at which the index would be permitted to rise becomes more complicated still, and such a "mixed" index appears rather unattractive from almost every angle.

[2]Perhaps the other most practicable plan would be the use of an index of bank debits, but this would have to have major correction to eliminate the very sharp short-term fluctuations and those caused by speculative activity. It would also have to be corrected in a manner similar to the pq index for technological advance. Another, similar, alternative would be the use of an index of national money income, similarly corrected for technological change.

[3]This consideration seems most important of all to Simons ("Rules versus Authorities," op. cit., pp. 12-13), emphasizing as he does the absolute necessity for the exclusion of discretionary control. Cf. also King, "The Best Index Number for Stabilization Purposes," op. cit., pp. 143-44.

seeable future [1] The statistical and political reasons are obvious. Statistically, this minimizes the necessity of dropping out prices which have become unimportant or non-competitive and substituting new (a statistical procedure at best hazardous) and the danger that price quotations will become misleading through changes in the quality of a good whose name remains the same. Politically, it removes the one apparent avenue to political tinkering which might go unnoticed. An economic consideration may also be noted, namely, that the use of such basic, standardized commodities would tend to weight the list heavily with commodities in whose production considerable improvements in efficiency might be apt to occur. This would give a more "inflationary" rule than otherwise--wages would have to rise more to prevent profit inflation.[2] However, if the argument of the preceding pages be accepted this is no disadvantage, for rising average money wages is accepted as a practically necessary and desirable institutional condition. Indeed, there is much in favor of having as inflationary a price trend as possible, ceteris paribus, so long as the result can be obtained while the index is being absolutely and continuously stabilized, in order to permit labor the "satisfaction" of as large money wage increases as possible and to minimize the problems of getting labor and capital out of overdeveloped (declining) industries. What is desirable, if you like, is a slight inflationary bias while maintaining the monetary certainty of the price stabilization policy. If profit inflation is a bogey to be taken seriously, some variant of the neutral money plan should be the logical choice, rather than a mere modification of the price index to be stabilized to exclude commodities with prospective downward price trends.

It is apparent that an index conforming reasonably well to the criteria set up this far would tend to be made up predominantly of prices of basic, standardized, actively traded and

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[1] Urging the desirability of the use of standardized, competitively-priced commodities, Warren and Pearson (Gold and Prices, pp. 275-78) feel that the use of basic goods which are easily transportable is perhaps the most fundamental criterion, the objects being to avoid the danger of regional monopolies and the problem of continually changing types of goods met with in manufactured products but relatively absent in basic goods.

[2] Cf. Simons, "Rules versus Authorities," op. cit., p. 13.

widely used commodities. The fourth primary criterion for the index may now be noted: that it be not unduly sensitive to changes and disturbances originating abroad. There appears, thus, a major conflict among the criteria suggested, for an index made up in this manner would certainly be heavily weighted with commodities whose prices are either determined in or strongly influenced by international markets. We have already recognized that the adoption of an independent national standard carries with it disadvantages, but the tremendous practical appeal of such a standard in the world of today as the line along which serious, positive action must be taken if the aims of monetary certainty and economic stability are to be approached in the relatively near future has been pointed out. Many outstanding writers have argued for stabilization of an index primarily composed of basic, internationally traded goods prices, with the purpose in mind of stabilization on an international basis.[1] Desirable as such world-wide stabilization may be, the position is here taken that it is no use to spend such crucial years as these waiting for will-o-the-wisps to materialize.

As to the exclusion of international prices, it makes a considerable difference whether stabilization in this country is based on the assumption that marked international co-operation can be expected in the near future or on the assumption that stabilization must be carried out here substantially without international co-operation. In the former case, there is much to be said for using basic, internationally-traded goods prices in the index (though by no means exclusively such prices); in the latter

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[1] F. A. Hayek (Monetary Nationalism and Economic Stability [London, 1937]) is perhaps the outstanding example of a writer who holds absolutely to the position that stabilization (neutral money) must come on an international basis or not at all, although recognizing with the greatest clarity the need for such monetary reform. But even such men as Hawtrey ("Money and Index Numbers," op. cit., pp. 84-85) and M. J. Keynes (Treatise [New York, 1930], II, 391-93) have suggested that the index include numerous internationally determined prices, with an eye to the establishment of international stabilization in the future. Both have emphasized the importance of internal stability, however. Since they both favor a good deal more discretion for the monetary authority than here advocated, presumably the authority would be expected to make allowances for the fact that some fluctuations of the index originated primarily abroad. The fact that both are English naturally makes them inclined to emphasize internationally traded goods prices--English price indexes are usually almost entirely composed of such prices.

case, it would certainly be desirable to protect the economy as far as possible from disturbances originating without. Thus, in the latter case it would be desirable to use primarily domestic prices. Otherwise the necessity might well arise of taking monetary action, due to monetary changes and business fluctuations in other nations, to maintain stability of the index which would have a disturbing, rather than a stabilizing, effect on the domestic price structure and business conditions.

Suppose, for illustration, the United States to have adopted a policy of price stabilization and a boom to occur in England. Assume further that exchange rates are not fixed, but that their movements are moderated, or pegged for short periods, by authorities either here or in England or by co-operative action. In this case it seems clear that the English boom will lead to a rise in the price of United States exports, since the demand would have increased and the limiting action of exchange changes would be less than if they were free. There seems no clear presumption as to the direction of change of the price of imports. As dollar exchange gradually rose their prices, other things being equal, would of course fall, which fall would tend to be offset by buying here due both to the increased income here due to increased activity of the export industries and to the fall in import prices. But in this case it seems clear that the effect of the English boom (and if the boom is assumed to have spread through the sterling bloc the conclusion becomes stronger yet) would be to cause a rise in an index of internationally traded goods prices in the United States.

Accepting this conclusion, the inclusion of internationally traded goods prices in the stabilization index for the United States would mean that we would take deflationary steps to offset the rise in the index. There would seem to be a double advantage to this: first, it would tend to offset the increased activity in the stimulated export industries, and second, it would tend to check the boom in England, although this extra check could hardly be a substantial one under the circumstances. The primary disadvantage has already been noted: a great boom abroad might send international prices very high and force very severe deflationary pressure by the monetary authority here to an extent unwarranted by internal conditions in the United States. Furthermore, it should be noted that even though the internationally

traded goods prices were omitted from the index, deflationary pressure would be brought about if booms developed in our export industries, since such booms would lead to increased income which in turn would tend to raise internal prices, giving the signal for deflationary pressure. Thus, with the international prices omitted, deflationary pressure would be exercised, but in a less direct and severe fashion than if they were included. With them omitted, the monetary authority defers action until the need is indicated by the internal price index; with them included, the deflationary action will come purely on the indication of a change in international prices, without any need for such deflation having been indicated by internal price movements, and without any assurance that the magnitude of the deflationary pressure exercised will be that indicated for keeping internal activity roughly stable. Rather the extent of deflation would be determined primarily by the size of the boom abroad. In any case, the restraint exercised on the boom abroad due to the inclusion of international prices in the United States index would hardly be of sufficient magnitude to warrant giving up advantages of the other policy to obtain it. Stabilization of the world economy seems an unnecessarily ambitious task for this country, domestic stabilization is sufficiently difficult. The important consideration internationally is that domestic stabilization here would mean that this country would refrain from accelerating foreign booms and depressions and hence would, to what might well be a large extent, act as a stabilizing force. To risk bad domestic results in order to go even further in the desire to save the world seems both unnecessary and undesirable.[1] But whether included or not, the resulting monetary action in the two cases differs only in directness and degree, not in kind.

If stabilization in this country is, on the other hand, to be viewed directly as a step toward international co-operation (in the sense of, say, price stabilization policies by several of the more important countries, or of several countries tying their currencies to the dollar after stabilization here, as seems fairly hopeful), the use of many internationally-traded goods prices

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[1] It is well to bear in mind that this discussion is purely as to "ideals" Actually, of course, it will be impossible to exclude completely international goods prices because to do so would leave only a very restricted list of commodities for the index.

would be of substantial advantage in giving a common basis for stabilization internationally. In view of the great desirability of some sort of real international co-operation toward currency stabilization, and in view of the fact that practically it is very difficult to construct an index conforming to the other criteria without using international goods prices, it appears to be a wise compromise to regard the criterion of domestic prices as a minor one compared to the other three. The problem, of course, is much more one of how much weight in the index shall be given internationally determined prices than of how many such prices are included; and this weight will depend substantially on the assumption as to the likelihood of domestic stabilization's leading to international stabilization, by formal agreement or otherwise.

Such appear to be the four major criteria according to which the "ideal" prices for the index to be stabilized would be chosen. The conflict between the ideal of freedom from external disturbances and the other primary criteria has just been noted. But there is a further, and perhaps greater, dilemma in attempting to find a large number of "important" commodities with reasonably sensitive prices (i.e., where the degree of price "regulation" is reasonably small). And when the demand for standardized, physically sharply definable commodities is superimposed, it becomes very evident that no index can be constructed without many compromises. Yet it must be borne in mind that theoretical ideals are seldom, if ever, reached, and it is only through the actual attempt to construct a satisfactory index that a dependable conclusion can be reached as to the seriousness of the necessary compromises.[1]

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[1]The problem of practical application of theoretical conclusions looms large in all the monetary reform proposals currently popular. Measurement of consumers' demand, especially quickly and regularly enough to provide the basis for day to day monetary action, could hardly be undertaken without trepidation. Stabilization of an index of the prices of the factors as such has been admitted to be completely impracticable by its outstanding advocates because of the impossibility of constructing such an index (cf. Hawtrey, "Money and Index Numbers," op. cit., p. 69), and resort has had to be made to stabilization of an index of money wages, itself a formidable statistical undertaking. Hayek's neutral money proposals have not included a precise statement of a satisfactory rule for monetary action; presumably sta-

The fact that agricultural prices perhaps best "fit" the three most important of the four primary criteria adopted and the peculiar status usually accorded them in relation to the business cycle appear to justify special investigation of their possibilities and problems for use in the price index. It is a common impression that the random fluctuations of agricultural prices (i.e., random in relation to the cyclical movements of other prices) are so great as to make the inclusion of agricultural prices dangerous, because their random fluctuations may lead to "undesirable" action by the monetary authority. That is, suppose a great rise in agricultural prices due to crop shortages, industrial conditions and prices remaining stable. The monetary authority would then be forced to bring deflationary pressure to keep the index stable, which would force other than agricultural prices down to offset the upward movement in the latter.[1] Obviously the objection to their inclusion is theoretically sound; but only consideration of the factual situation can determine its practical validity.

A distinction, often not clearly made, must be drawn between fluctuations of agricultural prices as a whole and as individual items. As has already been pointed out, agricultural prices as a whole show a clearly marked cyclical pattern, conforming in period to those of the general business cycle and having a

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bilization of MV per capita would be the closest rough approach A possibility here is the use of bank debits figures, corrected for population, but certainly this is far from satisfactory--aside from theoretical objections, the saw-tooth appearance of the series when graphed must give pause to any advocate. At first glance, outright stabilization of M appears the ideal solution, but the utter impossibility of defining closely the quantity of "effective money" so it can be measured and controlled presents problems as great as, if not greater than, those of the other plans, especially since what is effective money is constantly altering.

Thus the problems met and the compromises necessitated in constructing a price index to stabilize must be viewed in proper perspective--taking into account the similar difficulties involved in all other plans.

[1]This objection, usually not very clearly stated, is met with very generally in talking to lay and semi-professional (e.g., bankers) men, as well as among the rank and file of economists. Among the outstanding writers, Hawtrey has given most emphasis to it. See, e.g., Capital and Employment (London, 1936), pp. 264-65. Hawtrey qualifies his objection, though: "But even so, provided the deflation is not carried too far and does not develop into a vicious circle of depression, the harm done is quite limited."

definitely marked lead-lag relationship.[1] But Mills' data demonstrate that on the whole the amplitude of fluctuation of agricultural prices is considerably greater than that of other prices, and this is clearly indicated by the B.L.S. figures.[2] As for individual farm commodity prices, there can be little doubt that random movements, due to changing supply conditions, may be markedly distorted from the cyclical pattern which exists for the group as a whole, although here again the fluctuations, as compared to those of other basic commodities and groups, appear actually to have been much less than is the popular conception.[3]

The significance of these facts for our purpose appears to be twofold--first, that prices of basic agricultural commodities should not be ruled out simply because of fear of great ran-

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[1]Cf. especially L. H. Bean, "Agriculture and the Nation's Business," Journal of Farm Economics, IX (1927), 340-45. It will be recalled that low relative farm prices showed a recurring lead over periods of revival and prosperity, and high ones a similar lead over the downturn. Cf. Mills, The Behavior of Prices, Table XII, pp. 528-29, and Table X, p. 512, for a more detailed statistical verification.

[2]See the graphs of agricultural and non-agricultural price groups in any issue of Wholesale Prices, published semi-annually by the U. S. Department of Labor, for a simple pictorial demonstration. Mills computes the variability (mean deviation as a percentage of mean annual value) (The Behavior of Prices [New York, 1927], Table IV, pp. 489 ff.), the annual variability (mean deviation from the mean of link relatives of average annual prices) (Table VII, pp. 497 ff.), and the cyclical variability (mean of the averages of the rise as a percentage of the ensuing high and the fall as a percentage of the preceding high for each cycle) (Table XIV, pp. 548 ff.) for each of the 214 commodities studied; and in all three of these the variability of farm prices is on the whole considerably greater than that of any other group. His Prices in Recession and Recovery (New York, 1936), p. 492, gives similar evidence for the more recent period.

[3]The findings of Mills, noted in the preceding footnote, constitute the most detailed data available. It appears to be hops, onions, and potatoes which consistently show the greatest variabilities, while the more important commodities, such as corn, wheat, hay, cattle, hogs, and even cotton, show individual variabilities much more moderate as compared to those of important commodities in other groups.

This has been shown clearly by the graphical representations of Warren and Pearson (Gold and Prices, pp. 29-42) and of Snyder ("On the Structure and Inertia of Prices," op. cit., Chart III, p. 192, and Chart IV, p. 194), which indicate that, except in war periods, there has been remarkably close conformity of basic agricultural commodity prices to the general wholesale price index.

dom fluctuations; and second, that nevertheless care should be taken lest any single agricultural commodity be given sufficient weight to of itself greatly influence the index and that a sufficient number of agricultural commodities be included to get the offsetting effect of their random fluctuations upon each other.[1] Giving due weight to these considerations, the decisions as to the inclusion of farm commodity prices should be made on the same basis as for other prices, i.e., their conformity to the four major criteria indicated.

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In order to see how great a compromise of these theoretical ideals is necessary to construct an index number from existing price data, such an attempt has been made. Since they were virtually the only complete and more or less uniform series available over considerable periods and since they are the most generally used, B.L.S. wholesale price quotations were used exclusively. The B.L.S. aggregative index number formula was also used as being relatively easy to use and satisfactory statistically. First, "unimportant" commodities, with some special exceptions, were eliminated. Then all B.L.S. commodities were studied for frequency and amplitude of change, with special reference to the period from 1922 to the present. Next, an attempt was made to eliminate non-standardized commodities. Following this, an attempt to get a proper "balance" between producers' and consumers' goods; domestic, import, and export goods; durable and non-durable goods; agricultural and industrial products; goods of different geographical regions; and so on, was made. Lastly, the problem of weighting was solved by using weights roughly corresponding to those used by the B.L.S., drawn from the Census of Manufactures. The prices were divided into nine major groups, and although representation in the various groups did not correspond closely with that in the B.L.S. index, each group was given roughly its B.L.S.

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[1] One possible means of minimizing the "danger" from random fluctuations, if this were deemed necessary, would be the use of moving averages for agricultural prices, the prices used to be those of the moving averages rather than the actual quotations. This would tend to eliminate the effects of random fluctuations. However, there are substantial disadvantages If, for any particular commodities, such random movements appear overwhelmingly important, the simplest solution is to exclude them from the index, certainly if they are not of very great importance.

weight, one set for the period 1922-26 and another for the period 1927-38.

The behavior of the index constructed (at the cost of considerable compromises, especially in regard to important but somewhat inflexible prices) is indicated in Table 1. The index, when compared with other business and price series, performs quite acceptable, usually showing slight leads over basic cyclical indicators and never serious lags. However, it is undoubtedly true that if price stabilization were to be put into use a great improvement in the price data used (i.e., to make it more truly representative of actual price changes) would be necessary to obtain a really satisfactory index.

TABLE 1

SPECIAL INDEX, 1922-1938

	Special Index*		Special Index*		Special Index*
1922*		1924*		1926*	
January..	135.4	January..	149.6	January..	159.0
February.	137.5	February.	151.8	February.	157.0
March....	137.9	March....	147.6	March....	153.6
April....	139.7	April....	147.9	April....	153.4
May.....	146.5	May.....	145.5	May.....	153.8
June.....	149.0	June.....	143.1	June.....	153.9
July.....	155.8	July.....	144.8	July.....	151.5
August...	158.7	August...	149.1	August...	151.5
September	157.5	September	149.1	September	154.5
October..	157.1	October..	151.0	October..	153.2
November.	156.6	November.	149.8	November.	150.7
December.	156.2	December.	154.5	December.	148.6
1923*		1925*		1927	
January..	156.7	January..	158.3	January..	97.7
February.	158.2	February.	158.2	February.	96.5
March....	158.8	March....	159.2	March....	94.9
April....	159.6	April....	153.8	April....	93.8
May.....	156.9	May.....	153.2	May.....	93.8
June.....	151.7	June.....	155.8	June.....	93.4
July.....	149.2	July.....	159.5	July.....	93.5
August...	149.5	Jugust...	160.3	August...	95.1
September	154.3	September	160.5	September	96.1
October..	151.3	October..	159.2	October..	96.3
November.	149.4	November.	161.1	November.	96.0
December.	147.8	December.	158.6	December.	95.9

TABLE 1--CONTINUED

	Special Index		Special Index		Special Index
1928		1932		1936	
January..	96.9	January..	58.5	January..	75.9
February.	95.7	February.	57.0	February.	76.1
March....	95.4	March....	56.4	March....	74.3
April....	96.0	April....	55.7	April....	74.1
May.....	97.3	May.....	54.1	May.....	73.6
June.....	95.8	June.....	53.0	June.....	75.1
July.....	96.3	July.....	54.2	July.....	77.2
August...	96.1	August...	55.4	August...	78.2
September	97.6	September	56.3	September	78.4
October..	95.9	October..	55.5	October..	78.7
November.	95.6	November.	54.5	November.	80.5
December.	95.1	December.	53.0	December.	82.9
1929		1933		1937	
January..	95.8	January..	51.8	January..	85.4
February.	95.1	February.	50.4	February.	86.2
March....	96.4	March....	50.7	March....	89.1
April....	95.4	April....	51.4	April....	89.2
May.....	93.9	May.....	55.0	May.....	87.9
June.....	94.7	June.....	58.4	June.....	86.9
July.....	95.7	July.....	63.9	July.....	87.6
August...	96.6	August...	64.6	August...	86.8
September	96.6	September	65.2	September	86.5
October..	95.5	October..	64.8	October..	83.7
November.	93.8	November.	65.7	November.	79.5
December.	93.2	December.	64.5	December.	77.0
1930		1934		1938	
January..	91.7	January..	65.7	January..	75.8
February.	90.0	February.	67.6	February.	74.2
March....	88.2	March....	67.5	March....	74.0
April....	87.9	April....	67.8	April....	73.2
May.....	85.1	May.....	67.9	May.....	72.5
June.....	82.1	June.....	68.9	June.....	72.6
July.....	78.5	July.....	69.3	July.....	73.3
August...	77.2	August...	71.2	August...	72.7
September	78.0	September	72.2	September	73.0
October..	76.5	October..	70.9	October..	72.8
November.	74.2	November.	70.8	November.	73.3
December.	82.1	December.	71.7	December.	72.8
1931**		1935			
January..	72.1	January..	73.9		
February.	70.3	February.	74.9		
March....	69.5	March....	74.5		
April....	68.1	April....	75.5		
May.....	65.8	May.....	75.9		
June.....	64.2	June.....	75.3		
July.....	64.3	July.....	74.2		
August...	64.5	August...	75.4		
September	63.4	September	75.8		
October..	62.2	October..	75.9		
November.	62.5	November.	76.4		
December.	60.5	December.	76.8		

*For the years 1922 through 1926, the price relatives used were on a 1913 base; thereafter on a 1926 base. Thus the indexes before 1927 are roughly 50 per cent higher simply because of the different base--e.g., with the same price and last month of 1926 and the first of 1927, the relatives would be, say, 100 and 67, respectively. If we simply deflate the pre-1927 figures by multiplying by .667, the series on the two bases can be joined very smoothly.

**The addition of a substantial number of quotations in 1931 slightly distorts the true relationship between December, 1930, and January, 1931. Had it not been for this addition, there would have been a drop of about 1.00, instead of the rise of .03 which the index shows.